E and LOS F); thus, the maximum allowable number of vehicles that the roadway can service during a given hour is known.

Triangle Regional Model

NCDOT developed a different model for calculating the theoretical capacity of any roadway within the Triangle region. The Triangle Regional Model for Travel Demand Forecasting identifies four classes of roadways: freeway/expressway, rural arterial, suburban arterial and urban arterial. Within the freeway/expressway category, a road is further classified according to whether it is an interstate, suburban freeway, urban freeway, or rural highway, the number of lanes in one direction of travel, and the posted speed limit. Once a value has been recorded for all of these variables, a chart is examined which reveals the projected service volumes for the particular roadway at LOS D, along with the LOS E peak hour capacity. If the roadway is an arterial, it is classified according to the number of lanes in one direction of travel, whether or not it has a median and turn bays, traffic signal density (number per mile), and the posted speed limit. Once a value has been recorded for each of these variables, a chart is examined which reveals the projected capacity for the particular roadway at LOS D and at LOS E, along with the LOS E peak hour capacity. Overall, there are 99 different possible combinations of these variables in the Triangle model, leading to 99 possible different values for a roadway's "ultimate capacity". As is the case in the Asheville model, a roadway in the Triangle model should be able to handle up to the ultimate capacity value for vehicles per hour and still provide an acceptable level of service to its users.

Cherryville, North Carolina

Recently, NCDOT used Q/LOS software developed by the Florida Department of Transportation to establish a relationship between LOS and capacity for roadways in the Cherryville community. The FDOT software is one current method for determining the LOS thresholds for a given roadway, although some of the assumptions made in the model may not be appropriate for use in states other than Florida. Nonetheless, Cherryville's roadways are classified as either rural arterial, suburban arterial, or urban arterial. The various types of roads are then further stratified according to number of lanes, presence of a median and assumed speed. Using these input variables, the FDOT software can produce a projected AADT and peak hour LOS for any roadway in the Cherryville area.

Various methods for calculating the capacity and LOS have been employed across the state of North Carolina; however, the need for a more unified method is critical. Because predicting capacity and LOS is such a new concept in the transportation field, there were not many avenues found for standardized methods in use throughout the United States. FDOT is the only known state to have such a standardized method; therefore, the research team investigated how their model predicts traffic flow quantities.